

WHAT IS CLAIMED IS:

1. A turbine structure for use in a gas turbine engine, comprising:

a one piece drum rotor; and

a plurality of turbine blades attached to said one-piece drum rotor.

2. A turbine structure according to claim 1, wherein said drum rotor includes a plurality of turbine disks welded together.

3. A turbine structure according to claim 2, wherein each of said turbine disks has a plurality of integrally formed disk attachments for receiving an array of turbine blades.

4. A turbine structure according to claim 1, wherein said one piece drum rotor has a first diameter at a leading disk and a second diameter at a trailing disk and wherein said first diameter is greater than said second diameter.

5. A turbine structure according to claim 1, wherein said turbine structure forms part of a low pressure turbine for said engine.

6. A turbine structure according to claim 1 wherein said drum rotor has a plurality of integrally formed knife elements.

7. A turbine structure according to claim 1, further comprising at least one stator vane array positioned intermediate adjacent arrays of said turbine blades.

8. A turbine structure according to claim 1, wherein said one-piece drum rotor has an integrally formed flange for allowing said one-piece drum rotor to be joined to an adjacent structure.

9. A turbine structure according to claim 8, further comprising a nut and bolt arrangement for joining said drum rotor to said adjacent structure.

10. A method for installing a turbine structure into a turbine section of a gas turbine engine comprising the steps of:

installing a one-piece drum rotor with an upstream set of turbine blades attached to said one-piece drum rotor; and

said installing step comprising joining said one-piece drum rotor to an adjacent structure.

11. A method according to claim 10, further comprising attaching a first array of stator vanes to said one-piece drum rotor after said installing step.

12. A method according to claim 11, further comprising attaching a second set of turbine blades to said one-piece drum rotor downstream of said stator vane array.

13. A method according to claim 12, further comprising installing a second array of stator vanes downstream of said second set of turbine blades and thereafter installing a third set of turbine blades downstream of said second array of turbine blades.

14. A turbine section of a gas turbine engine comprising:

a first structure having an array of turbine blades and an array of stator vanes attached thereto;

a second structure attached to said first structure; and

said second structure including a one-piece drum rotor and a plurality of spaced apart turbine blade arrays attached to said drum rotor.

15. A turbine section according to claim 14, wherein said second structure forms at least the last two stages of the turbine section.

16. A turbine section according to claim 14, said second structure includes a plurality of axially spaced apart turbine disks for supporting said turbine blades.

17. A turbine section according to claim 14, further comprising at least one array of stator vanes positioned between at least two adjacent ones of said turbine blade arrays.